Tech Talk

Configuration Items
"An SLS Case Study"

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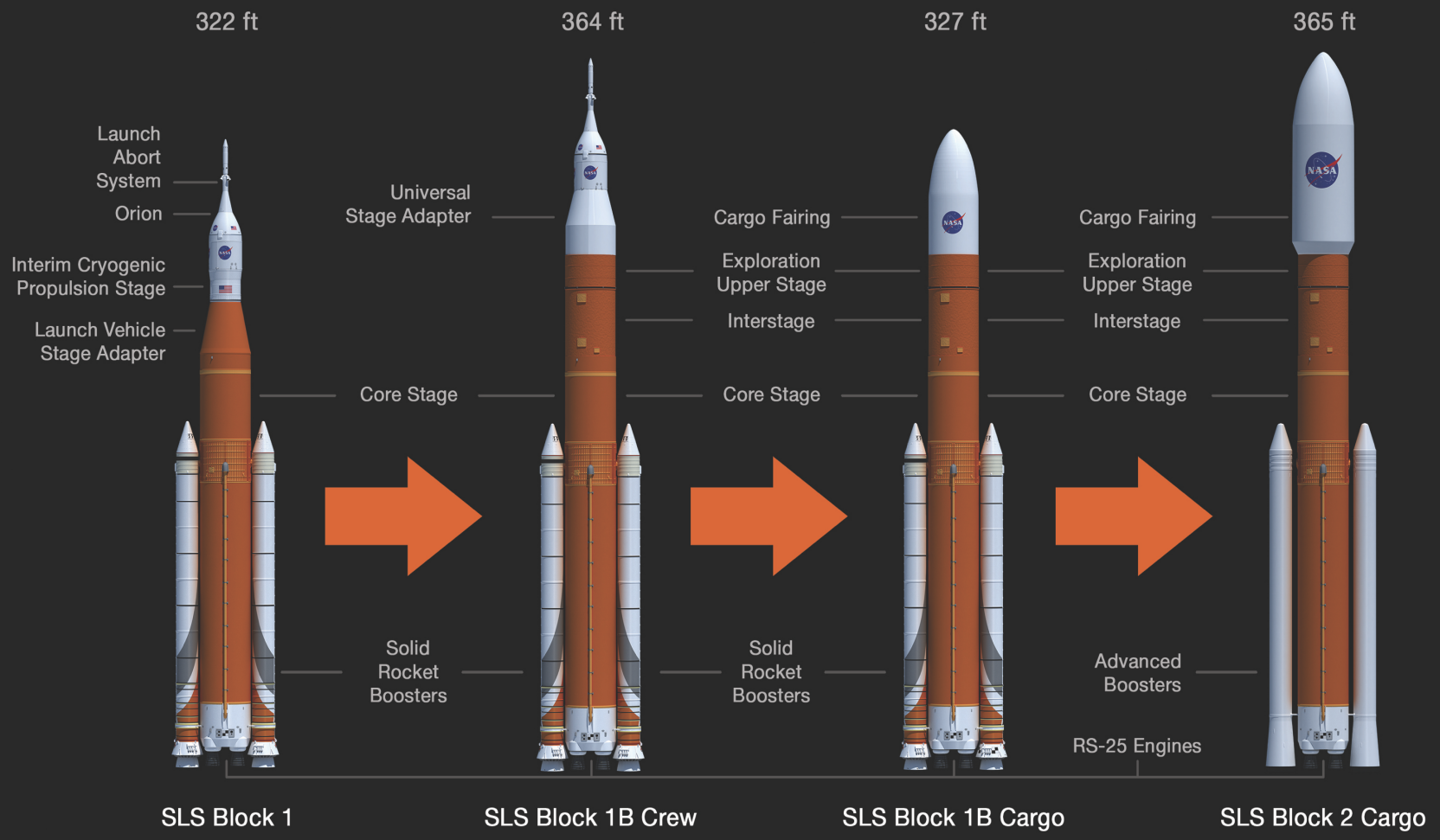
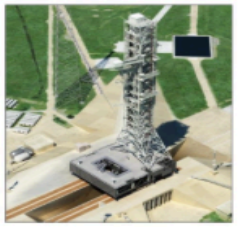
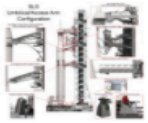
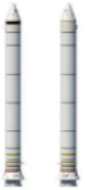
SLS Top Configuration Item Blocks



10000 (EM-1) Vehicle Integrated Launch System Drawing Tree And Installation Drawing Assignments







Exploration System – 10000 Series 97M62000-001

GSDO Integrated ML and PAD Envelope Control Drawing 97M62070-001

GSDO Integrated ML and PAD

GSDO Launch Vehicle to Ground Installation

Space Transportation Assembly - 10000 Series 97M62010-001

Space Transportation Assembly – 10000 Series Envelope and Alignment 97M62021-001

Crew Vehicle, Multi-Purpose, Envelope Control Drawing 10000 Series 97M62030-001

Integrated MPCV Contractor Assembly 948YA0000000-501

Space Launch Assembly 97M62020-001

Secondary Payload Installation 97M21701-001

ICPS Procurement Control Drawing 97M62105-001

ICPS Contractor Assembly 1G50001

MSA Access Cover Installation 97M62179-001

MSA Top Assembly 97M62110-001

Launch Vehicle Assembly 97M62040-001

Core Stage, Procurement Control Drawing 97M62050-001

Integrated Core Contractor Assembly 201-010100-1

LVSA Procurement Control Drawing 97M62215-001

LVSA Contractor Assembly 18610001-001

ICPS/LVSA Separation System Assembly (GFE)

Solid Rocket Boosters, Procurement Control Drawing 97M62060-001

Integrated Booster Contractor Assembly 1U122000

PCD

ECD

SPIE Level 3

StE Level 2

ATK GSDO TBE ULA LMCO Boeing

Table C-0. Exploration System (ES) Configurations – Overview

	Block 1	Block 1B			Block 2B	
Mission	**EM1 (Orion)**	**EM2 (Orion)**	**TBD-033 (Cargo)**	**TBD-032 (Cargo)**	**TBD-034 (Cargo)**	**TBD-035 (Orion)**
Exploration System	**ES-10000**	**ES-28000**	**ES-27000**	**ES-27500**	**ES-25000 ES-26000**	**ES-23000 ES-24000**
Ground Systems	Ground Systems	Ground Systems	Ground Systems	Ground Systems	Ground Systems	Ground Systems
Space Transportation Assembly	**ES-ST-10000**	**ES-ST-28000**	**ES-ST-27000**	**ES-ST-27500**	**ES-ST-25000 ES-ST-26000**	**ES-ST-23000 ES-ST-24000**
Primary Payload	MPCV	MPCV	8.4m Payload	5m Payload	10m Payload	MPCV
Secondary Payloads	Secondary Payloads	Secondary Payloads	Secondary Payloads	Secondary Payloads	Secondary Payloads	Secondary Payloads
Space Launch Assembly	**SLS-10000**	**SLS-28000**	**SLS-27000**	**SLS-27500**	**SLS-25000 SLS-26000**	**SLS-23000 SLS-24000**
Payload Fairing			8.4m Fairing	5m Fairing	10m Fairing	
Payload Adapter		PAF	PAF	5m Adapter	10m Adapter	
Adapter	MSA					
ICPS	ICPS					
ICPS Engine	RL-10B2					
Launch Vehicle	**SLS-LV-10000**	**SLS-LV-28000**	**SLS-LV-27000**	**SLS-LV-27500**	**SLS-LV-25000 SLS-LV-26000**	**SLS-LV-23000 SLS-LV-24000**
Adapter		USA				USA
EUS		EUS	EUS	EUS	EUS	EUS
EUS Engine		RL10C-3 (4)	RL10C-3 (4)	RL10C-3 (4)	RL10C-3 (4)	RL10C-3 (4)
Booster	5-Segment Booster (RSRMV) (2)	5-Segment Booster (RSRMV) (2)	5-Segment Booster (RSRMV) (2)	5-Segment Booster (RSRMV) (2)	Advanced Booster (2)	Advanced Booster (2)
Core Stage	8.4m Core	8.4m Core	8.4m Core	8.4m Core	8.4m Core	8.4m Core
Core Stage Engine	RS-25 (4)	RS-25 (4)	RS-25 (4)	RS-25 (4)	RS-25 (4)	RS-25 (4)
Flight Software	Flight Software	Flight Software	Flight Software	Flight Software	Flight Software	Flight Software

Table C-1. Exploration System (ES) 10000-Series CIs Related to ES Integrated Design Release by SLSP

CI Name [CI Number]	End Use	Units	NASA B/L Control	Primary Requirements – NASA B/L	Design Activity	Top Assy No.*	CI-Effectivity for Part Release by Design Activity	
							CI No.	Effectivities
Exploration System 10000 Series [ES-10000]	Flight	1	ESD JICB	97M62000, Exploration System – 10000 Series 97M62070-001, GSDO Integrated ML and Pad Envelope Control Drawing	MSFC	97M62000-001	ES-10000	001
ES Space Transportation System [ES-ST-10000]	Flight	1	ESD JICB	SLS-SPEC-028, SLSP Integrated Vehicle Structural Design Specification MPCV 70026, Orion MPCV Program to SLS Program Interface Requirements Document (IRD) SLS-ICD-052-01, SLSP-to-GSDOP ICD, Volume 1: Functional Interface Definition & SLSP Integrated Vehicle-to-GSDOP Detailed Design 97M62010, Space Transportation Assembly 97M62021, Integrated Launch Vehicle Assembly Envelope and Alignment Drawing 97M62030, MPCV Procurement Control Drawing 97M62070-001, GSDO Integrated ML and Pad Envelope Control Drawing 97M21701-001, Secondary Payload Deployer Integration	MSFC	97M62010-001	ES-10000	001

Column Descriptions

CI NAME

The descriptive name of the CI. In Tables C-1 and C-2, the CI name matches the nomenclature from the Product Breakdown Structure for the Block 1 SLS System, except that "10000 Series" has been used instead of "Block 1" to be more consistent with the SLS Launch Vehicle assembly drawings nomenclature.. The series designation (e.g., 10000) has been included in the CI name for CIs that are designed specifically for the 10000-series (flight or ground). For CIs that may be utilized in multiple series, the series designation has not been included in the CI Name.

CI NUMBER

The unique number assigned to the CI using the following general format: for vehicle configuration-specific CIs: Program-Vehicle-Configuration-Element-Component-Usage; for multi-vehicle usage CIs: Program-Element-Component-Usage. The CI number will be utilized in the CM accounting database to relate the CI to its baselined documentation, and the CI number is used as the effectivity context when release effectivity is assigned to parts.

END USE

The intended use of the CI – Flight (FLT), Qualification (QUAL), or Ground (other categories can be added).

UNITS

The number of units planned for the 10000 series.

NASA B/L CONTROL

The group that has control authority over the CI requirements in the configuration baselines.

PRIMARY REQUIREMENTS–NASA B/L

A list of the CI's primary requirements documentation in the configuration baselines.

DESIGN ACTIVITY

The organization that has responsibility for the CI detailed design and administers the release system for the detailed design documentation (drawings, parts lists, CAD models, etc.).

TOP ASSY NO.

The drawing or part number of the top assembly of the CI.

CI-EFFECTIVITY FOR PART RELEASE BY DESIGN ACTIVITY

The effectivity of the part release is made up of the CI and Effectivity identifiers. The CI- effectivity can be used to retrieve the authorized configuration. Authorization for a part to be included in a configuration is done through application of CI-effectivity when the part is released. A part can be assigned multiple effectivities.

CONFIGURATION ITEM (CI) AND EFFECTIVITY LIST (EFFECTIVITY SHEET)

PROJECT NAME & ACRONYM	DOCUMENT NUMBER	REVISION	DATE	PAGE
Space Launch System (SLS) Ground Support Equipment (GSE)	N/A	D	2/24/17	2 OF 5

CI NUMBER OR PROJECT CODE	EFFECTIVITY UNITS OR CODE	TOP ASSEMBLY PART NUMBERS & NAMES	NUMBER OF UNITS & APPLICATION	USAGE/GENERAL DESCRIPTION	DESIGN ACTIVITY	REV OR DATE CHANGED
SLS-GSE-MPC	0001	97M57700-005, PLATFORM ASSEMBLY, MULTI-PURPOSE CARRIER (MPC), TALL LEGS	2	SLS CS, CS STA, other as needed	ES21	C
SLS-GSE-MPTS	0001	97M57610-001, STA TO MPTS INSTALLATION, INTERTANK	1	SLS CS STA: IT	ES21	C
SLS-GSE-MPTS	0001	97M57613-001, STA TO MPTS INSTALLATION , LH2	1	SLS CS STA: LH2	ES21	C
SLS-GSE-MPTS	0001	97M57614-001, STA TO MPTS INSTALLATION, LOX	1	SLS CS STA: LOX	ES21	C
SLS-GSE-MPTS	0001	97M57615-001, MPTS ASSY, LOCKED		SLS CS STAs: IT, LH2, LOX		C
SLS-GSE-MPTS	0001	97M57615-003, MPTS ASSY, FREED		SLS CS STAs: IT, LH2, LOX		C
SLS-GSE-MPTS	0001	97M57810-001, STA TRANSPORTATION BRACKETS, INSTALLATION DRAWING, HIS	4	SLS CS STAs: IT, LH2, LOX	ES21	C
SLS-GSE-MPTS	0001	97M57811-001, STA TRANSPORTATION BRACKETS, KIT DRAWING, HIS	2	SLS CS STAs: IT, LH2, LOX	ES21	C
SLS-GSE-MPTS-CS	0001	97M57617-001, CS, FWD MPTS	2	SLS CS	ES21	C
SLS-GSE-MPTS-CS	0001	97M57618-001, CS, AFT MPTS	2	SLS CS	ES21	C
SLS-GSE-MPTS-CS	0001	97M57620, INSTALLATION, CS TO MPTS		SLS CS	ES21	C
SLS-GSE-SP	0001	97M58257-001, SPIDER ASSEMBLY, FORWARD LIFTING	2	SLS CS	ES21	A

CI NUMBERS AND NAMES	
SLS-GSE, SLS GSE General	SLS-GSE-MPC, SLS GSE Multi-Purpose Carrier
SLS-GSE-ALE, SLS GSE Aft Lifting Equipment	SLS-GSE-MPTS, SLS GSE Multi-Purpose Transportation System
SLS-GSE-EB, SLS GSE Engine Section Lifting Beam	SLS-GSE-MPTS, SLS GSE Multi-Purpose Transportation System, Core Stage
SLS-GSE-FLE, SLS GSE Forward Lifting Equipment	SLS-GSE-SP, SLS GSE Core Stage Forward Lifting Spider
SLS-GSE-ARB, SLS GSE Aft Restraint Bracket	

ACRONYMS		
ALE: Aft Lifting Equipment	IT: Intertank	MPTS: Multi-Purpose Transportation System
ARB: Aft Restraint Bracket	KSC: Kennedy Space Center	SP: GSE Lifting Spider
CS: Core Stage	LH2: Liquid Hydrogen Tank	SSC: Stennis Space Center
EB: Engine Section Lifting Beam	LOX: Liquid Oxygen Tank	STA: Structural Test Article
ES: Engine Section	MPC: Multi-Purpose Carrier	
FLE: Forward Lifting Equipment		
GSE: Ground Support Equipment		